REMARKS/ARGUMENTS

Claims 1-5 and 7-16 are active. Claims 7-13 are withdrawn but are nonetheless retained for the Office's consideration of rejoinder upon finding that the elected composition claims are allowable. Claims 14-16 find support at least on page 15 of the present application. Support for permeating nutrient components into the resulting cellulose is found at least on page 5, last paragraph.

The claims define a solid medium suitable for culturing microorganisms. Media for culturing microorganisms include liquid culture media (culture broths) and solid culture media. The liquid culture media have drawbacks such as poor microbial growth and isolation of microorganisms at low purity. Alternatively, solid culture media are molded in disc shapes, using Petri dishes, on the surface of which a liquid microbial culture is coated and cultured, to form separated colonies. Compared with liquid culture media, solid culture media are suitable for isolation of microorganisms and pure culturing of microorganisms.

Agar solid cultures are common and widely used in the art based on their solidifying properties and ability to support microbial growth. However, not all microbes grow well on agar. For example, microorganisms growing at high temperatures of 100°C or more or under strong acid or basic conditions have been discovered. Under such high temperatures or wide variance in pH agar softens and may solubilize render the use of agar insufficient for culturing such "extreme" microorganisms. The researcher is then faced with turning back to liquid culture medium; however, liquid cultures have some drawbacks as already discussed above.

The inventors have found that the solid culture medium as defined in the claims can retain the properties and shape stably under a wide range of temperature, pH and salt concentration compared to agar thereby facilitating the culture, on solid surfaces, microbes at

extreme temperatures, pH and/or salt conditions. This provides a significant advance in the field enabling researchers a new tool to study and characterize such microbes.

The references cited in the Official Action fail to disclose or suggest a solid medium suitable for culturing microorganism with a cellulose gel and nutrients permeated therein.

The rejection of Claim 1 under 35 USC 102(b) citing JP 55-044312 (Shigenori) is inapplicable to Claim 1 as presented herein because Shigenori, while teaching a cellulose gel, does so for chromatography, which would not contain nutrients.

More specifically, Shigenori describes that the porous cellulose gel is used as a gel material for chromatography such as gel filtration-, ion exchange- and affinity-chromatography (page 1, lower right column, lines 7 to 10) but does not describe that the porous cellulose gel can be suitable for culturing microorganisms and having such nutrients to support the culturing permeated in the cellulose gel.

Accordingly, withdrawal of the rejection applied under 35 USC 102(b) is requested.

The rejection of Claims 1-5 under 35 USC 103(a) citing Shigenori evidenced by Hideyuki (JP 55044312) is unsustainable as well.

Applicants have already explained by Shigenori's cellulose gel is not the same as what is claimed. The rejection outlines that Shigenori does not describe the degree of crystallization, MW, concentration or porosity but nonetheless such features would have been obvious as routine optimizations in light of the ranges Hideyuki describes (see Action at pages 3-4).

The cellulose gel described in Shigenori is a gel material for chromatography, and is therefore in a very small granular or bead-like form of a particle size of about 10 to 500 μm (the reference, page 3, upper right, lines 3 to 5).

Hideyuki discloses "A porous spherical cellulose particle with a size of molecular weight exclusion limit of 500,000 to 5,000,000 via polyethylene oxide, a crystallization degree of 3 to 15 % as determined by X ray diffractometry, and a roundness of 0.9 or more."

The cellulose particle is in a spherical form of a small particle size for use as a separation agent for chromatography, as in the cited reference Shigenori.

Hideyuki does not suggest that nutrient components permeate into a cellulose gel to prepare a solid medium for culturing microorganisms.

Hideyuki also describes a bioreactor carrier as one of the uses of the porous spherical cellulose particle ([0001]), but properties required for a bioreactor carrier are different from that for a solid medium for culturing microorganisms. Specifically, the bioreactor carrier is generally intended for, e.g., enzyme reactions by immobilizing microorganisms and enzymes inside the carrier, while a solid medium for culturing microorganisms typically retain microorganisms on the surface to grow as opposed to the immobilization of microorganism in the carrier as in Hideyuki.

Therefore, when applied in combination, at best, the citations teach optimization of conditions suitable for chromatography or for a bioreactor arranged in an entirely different manner, but not for the culture of microorganism, in which nutrient components are permeated in the cellulose. Thus, the combined teachings do not provide any recognition that the variables, in question, in a solid material suitable for culturing microorganisms, are those that would effect the results. See also *In re Antonie*, 559 F.2d 618, 195 USPQ 6, 8-9 (CCPA 1977) (exceptions to rule that optimization of a result-effective variable is obvious, such as where the results of optimizing the variable are unexpectedly good or where the variable was not recognized to be result effective). See also *Ex parte Whalen*, 89 USPQ2d 1078 (Bd. Pat. App. & Int. 2008).

Further and with respect to new claims 14-16, the culture medium can be in a disc form as prepared by using Petri dishes and the like, or a slant culture medium in a column form where the upper face is slanted or a multi-layer culture medium in a column form, as prepared by using test tubes (the specification, page 15, lines 20 to 23). Therefore, the form of the medium in these claims differs from that taught in the cited art. In terms of specific properties and operability of performing chromatography compared to microorganism culturing the solid medium would not be in a granular or bead-like form of a small particle size as in Shigenori.

The combined teachings of the cited art also fail to suggest anything relating to the advantages that the claimed medium provides, enabling microbial culturing under a wide array of severe conditions such as temperatures above 100°C, high and low pH that cannot be done with the conventional agar used in the field.

Withdrawal of the rejection is requested.

A Notice of allowance, including rejoinder of the non-elected process claims, is also requested.

Respectfully submitted,

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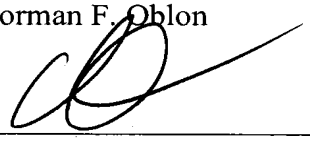

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